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AGRICULTURAL EXPERIMENT STATION
Pullman, Washington

Division of Agronomy

Wheat Varieties of Washington in 1929

by

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SUMMARY

1. The variety survey given in this bulletin was made with the aid of 760 farmers who reside in various wheat growing sections and produced 13 per cent of Washington's wheat crop in 1929.

2. The six leading varieties of spring wheat in order of production are: Baart, Federation, Bluestem, Jenkin, Marquis, and Thompson. The six leading varieties of winter wheat in order of production are: Hybrid 128, Triplet, Turkey, Redit, Fortyfold, and Albit. These 12 varieties comprised 91.7 per cent of the entire wheat crop. Their location and the amounts of each are shown in Figures 4 and 5.

3. The acreage and production of the wheat varieties found in the state are given by counties in Table 1.

4. A comparison of the survey of the 1929 crop with the surveys of 1923 and 1926 shows the changes that have taken place in the varieties grown. These changes are due largely to the superiority of new varieties in meeting the various requirements of the grower, the dealer, and the miller.

5. Baart, a wheat of high milling value, is the most extensively grown of all varieties, and is adapted to areas of light rainfall.

6. Federation is the leading spring wheat in areas of 16 to 35 inches of rainfall. North of the Snake river it is sown mainly in the spring, but it is sown in the fall by 65 per cent of the farmers south of this river.

7. Jenkin is similar to Federation, but it is more often fall sown and reaches its best development near the mountains.

8. The other varieties of spring wheat are restricted in the areas grown, Bluestem and Marquis being found mainly in north Lincoln county and Thompson in the irrigated sections of the Yakima Valley.

9. Hybrid 128, Triplet, Fortyfold, and Albit find favor in the better sections of eastern Washington. Redit is suited to much of the same area but is grown more commonly in areas of lighter rainfall. Albit and Redit are resistant to smut and have materially reduced the losses due to this disease. Turkey is the best dry land winter wheat and is grown in areas of least rainfall.

10. The 12 leading varieties are classified according to federal grades in Table 3. Four red varieties make up 34.7 per cent of the crop, and eight white varieties make up 57.0 per cent.

WHEAT VARIETIES OF WASHINGTON IN 1929

By E. F. Gaines and E. G. Schafer

Introduction

The variety survey for the Washington wheat crop for 1929, which is given in detail in this bulletin, was made with the aid of 760 farmers residing in various wheat growing sections of the state. Replies from these growers covered 251,523 acres or 11 per cent of the total acreage and 5,831,324 bushels or 13.7 per cent of the total production. It was assumed that the varieties produced by the growers reporting from each county were representative of all the wheat of the county. The acreage and production by counties is given in the "Fifteenth Census of the United States: 1930" which reports the 1929 crop. A basis for determining the acreage and production of varieties by counties has been afforded by these two sources of information. Of special interest are the data given on location of varieties recently introduced and the extent to which they are grown. Comparing the survey of the 1926 crop with that of 1929, it will be seen that certain new varieties have greatly increased and that among the 12 leading varieties two new ones have appeared, replacing two old ones. In 1929 the 12 leading varieties comprised 91.7 per cent of the entire crop, while the 12 leading varieties given in the 1926 survey comprised 86.7 per cent of the total. More complete standardization may be expected as superior varieties take the place of old ones. The distribution of all wheat in Washington is shown in Figure 1.

Method of Making the Survey

The acreage of a particular variety for a county was found by means of the formula $x = \frac{ab}{c}$ in which a is the number of acres of a given variety of wheat reported in the survey for the county, b is the acreage grown in the county as reported by the census, and c is the total number of acres of wheat reported by farmers from the county. Production in

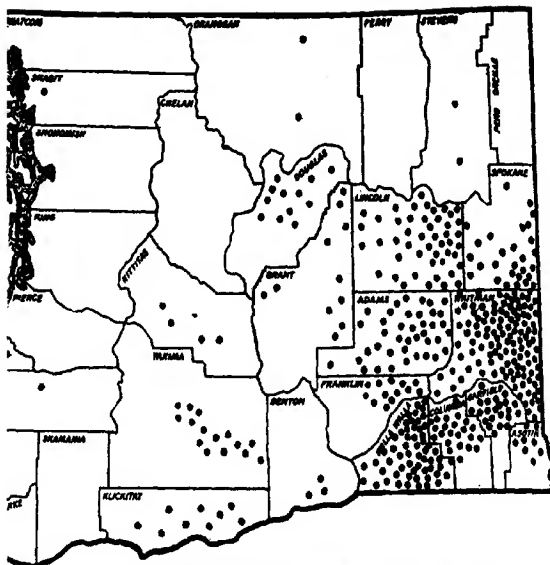


Fig. 1. Distribution of the 42,588,762 bushel wheat crop of Washington in 1928.
Each dot represents 100,000 bushels.

bushels was determined in a similar manner. By substituting the proper values for all varieties for each county and making the necessary computations, data given in the table, "Distribution of Wheat Varieties by Counties—1929," are supplied. The method of making the survey was developed more fully in Washington Agricultural Experiment Station Bulletin 224.

Varietal Distribution

The acreage and production of the 40 varieties reported are given in Table 1. The 21 counties included in the survey are arranged alphabetically as are the varieties in each county. The number of varieties found in a county varies from 1 in San Juan to 26 in Whitman. Those counties having a small production usually have few varieties while counties of large production have many.

The seven counties, Whitman, Lincoln, Klickitat, Spokane, Adams, Douglas, and Walla Walla, have 10 or more varieties each. Less than 10 were reported from each of the other counties. Not including those varieties which make up less than five per cent of a county's total, Whitman would have 6 varieties instead of 26; Lincoln, 6 instead of 17; Klickitat, 3 instead of 16; Spokane, 7 instead of 16; Adams, 3 instead of 12; Douglas, 4 instead of 10; and Walla Walla, 5 instead of 10.

Table 1. Distribution of Wheat Varieties by Counties—1929

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Adams				
Albit	2,143	.68	44,029	1.10
Baart	214,290	68.00	2,621,748	65.50
Bluestem	630	.20	4,003	.10
Bunyip	4,380	1.39	36,024	.90
Federation	126	.04	2,001	.05
Hard Federation	5,263	1.67	108,072	2.70
Hybrid 128	882	.28	12,008	.30
Jones Fife	9,675	3.07	100,067	2.50
Marquis	189	.06	4,003	.10
Ridit	2,868	.91	52,035	1.30
Triplet	27,511	8.73	472,315	11.80
Turkey	47,081	14.94	544,363	13.60
Total	315,038	100.17	4,000,668	99.95
Asotin				
Albit	180	.48	5,453	.70
Federation	2,349	6.25	33,499	4.30
Fortyfold	19,628	52.23	408,221	52.40
Hybrid 128	6,588	17.53	160,484	20.60
Marquis	598	1.59	9,349	1.20
Ridit	5,235	13.93	112,183	14.40
Turkey	2,995	7.97	49,859	6.40
Total	37,573	99.98	779,048	100.00
Benton				
Baart	13,847	48.15	178,299	54.10
Hybrid 128	1,001	3.48	15,820	4.80

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Benton (Cont.)				
Turkey	13,910	48.37	135,455	41.10
Total	28,758	100.00	329,574	100.00
Columbia				
Albit	15,142	17.23	435,439	18.30
Federation	2,505	2.85	59,486	2.50
Hard Federation	1,178	1.34	21,415	.90
Hybrid 128	7,839	8.92	185,597	7.80
Jenkin	6,943	7.90	166,561	7.00
Marquis	352	.40	4,759	.20
Ridit	14,896	16.95	378,332	15.90
Triplet	29,370	33.42	785,218	33.00
Turkey	10,370	11.80	345,020	14.50
Total	88,595	100.81	2,381,827	100.10
Douglas				
Albit	2,598	1.81	47,383	4.00
Baart	26,223	18.27	203,747	17.20
Bluestem	29,610	20.63	188,347	15.90
Currawa	3,200	2.23	15,400	1.30
Federation	861	.60	5,923	.50
Hybrid 143	1,292	.90	7,107	.60
Jones Fife	1,378	.96	22,507	1.90
Marquis	2,856	1.99	18,953	1.60
Ridit	51,455	35.85	484,491	40.90
Turkey	24,027	16.74	190,717	16.10
Total	143,500	99.98	1,184,575	100.00
Franklin				
Baart	21,022	22.38	258,206	19.80
Bluestem	2,902	3.09	31,298	2.40
Hybrid 128	3,025	3.22	49,555	3.80
Jones Fife	10,877	11.58	148,664	11.40
Ridit	3,325	3.54	36,514	2.80
Turkey	52,800	56.21	779,834	59.80
Total	93,951	100.02	1,304,071	100.00

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Garfield				
Albit	2,016	2.57	68,179	3.10
Federation	463	.59	4,399	.20
Fortyfold	1,020	1.31	24,193	1.10
Hybrid 128	19,251	24.54	607,016	27.60
Marquis	1,232	1.57	10,997	.50
Ridit	14,387	18.34	303,508	13.80
Smutless	2,675	3.41	81,375	3.70
Supreme	126	.16	4,399	.20
Triplet	3,820	4.87	123,163	5.60
Turkey	33,449	42.64	972,106	44.20
Total	78,439	100.00	2,199,335	100.00
Grant				
Baart	109,570	89.67	925,462	89.30
Bluestem	1,955	1.60	26,945	2.60
Bunyip	3,299	2.70	27,982	2.70
Jones Fife	1,197	.98	11,340	1.10
Quality	4,888	4.00	33,163	3.20
Ridit	1,197	.98	12,436	1.20
Total	122,106	99.93	1,037,328	100.10
Grays Harbor				
Jones Fife	338	57.89	10,466	60.70
Marquis	246	42.11	6,776	39.30
Total	584	100.00	17,242	100.00
Kittitas				
Big Club	343	2.49	11,270	2.50
Dicklow	848	6.16	29,303	6.50
Federation	11,968	86.95	401,220	89.00
Little Club	606	4.40	8,565	1.90
Total	13,765	100.00	450,358	99.90

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Klickitat				
Albit	909	1.43	16,004	1.80
Baart	782	1.23	4,446	.50
Bluestem	769	1.21	12,448	1.40
Coppei	1,959	3.08	24,006	2.70
Federation	1,711	2.69	15,115	1.70
Fortyfold	21,646	34.04	264,960	29.80
Hard Federation	451	.71	3,557	.40
Hybrid 123	10,550	16.59	183,161	20.60
Hybrid 128	17,697	27.83	274,741	30.90
Hybrid 143	1,649	2.31	21,339	2.40
Jenkin	172	.27	1,778	.20
Jones Fife	521	.82	8,891	1.00
Kanred	2,518	3.96	32,898	3.70
Ridit	324	.51	5,335	.60
Triplet	1,081	1.70	5,335	.60
Turkey	973	1.53	15,115	1.70
Total	63,712	99.91	889,129	100.00
Lewis				
Baart	158	3.00	4,800	3.00
Bluestem	316	6.00	9,602	6.00
Brown Sq. Head	316	6.00	9,602	6.00
Little Club	105	2.00	3,200	2.00
Marquis	1,739	33.00	52,809	33.00
Red Russian	2,635	50.00	80,013	50.00
Total	5,269	100.00	160,026	100.00
Lincoln				
Baart	152,511	41.32	1,725,200	35.80
Bluestem	95,891	25.98	1,166,197	24.20
Bon	1,144	.31	8,674	.18
Bunyip	4,540	1.23	12,047	.25
Club	1,144	.31	29,878	.62
Federation	16,093	4.36	240,950	5.00
Fortyfold	5,426	1.47	125,294	2.60
Hard Federation	5,573	1.51	86,742	1.80

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Lincoln (Cont.)				
Hybrid 128	18,160	4.92	385,520	8.00
Jenkin	849	.23	4,819	.10
Jones Fife	517	.14	9,638	.20
Marquis	39,124	10.60	520,451	10.80
Quality	1,144	.31	19,276	.40
Red Bobs	5,610	1.52	67,948	1.41
Ridit	14,727	3.99	303,597	6.30
Ruby	2,362	.64	10,120	.21
Turkey	4,282	1.16	106,018	2.20
Total	369,097	100.00	4,822,369	100.07
Okanogan				
Baart	3,448	19.16	57,233	28.90
Bluestem	6,186	34.37	43,370	21.90
Federation	1,229	6.83	5,941	3.00
Fortyfold	1,434	7.97	23,962	12.10
Hybrid 128	1,774	9.86	24,755	12.50
Jones Fife	2,493	13.85	27,923	14.10
Marquis	750	4.17	4,555	2.30
Ridit	682	3.79	10,496	5.30
Total	17,996	100.00	198,235	100.10
Pend Oreille				
Bluestem	197	12.40	1,923	9.00
Federation	235	14.83	5,749	26.90
Fortyfold	760	47.85	7,865	36.80
Marquis	395	24.88	5,813	27.20
Total	1,587	99.96	21,350	99.90
San Juan				
Sun	1,068	100.00	35,931	100.00
Skagit				
Durum	180	11.11	2,724	3.70
Marquis	1,081	66.67	38,214	51.90
Red Russian	360	22.22	32,692	44.40
Total	1,621	100.00	73,630	100.00

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Spokane				
Albit	11,359	7.61	274,549	9.80
Baart	940	.63	8,405	.30
Bluestem	5,000	3.35	58,832	2.10
Federation	11,792	7.90	151,282	5.40
Fortyfold	32,912	22.05	714,387	25.50
Hybrid 128	9,821	6.58	235,328	8.40
Jones Fife	3,224	2.16	78,443	2.80
Little Club	3,164	2.12	44,824	1.60
Marquis	18,225	12.21	170,893	6.10
Mosida	328	.22	5,603	.24
Poole	1,105	.74	19,611	.70
Red Chaff	1,388	.93	11,206	.40
Ridit	33,613	22.52	630,342	22.50
Triplet	13,418	8.99	327,778	11.70
Turkey	2,761	1.85	58,832	2.10
White Odessa	224	.15	2,802	.14
Total	149,274	100.01	2,793,117	99.78
Stevens				
Albit	1,024	6.44	10,564	4.00
Fortyfold	4,847	30.47	86,894	32.90
Hybrid 128	2,049	12.88	27,996	10.60
Jenkin	1,502	9.44	26,147	9.90
Marquis	4,778	30.04	77,385	29.30
Ridit	1,707	10.73	35,127	13.30
Total	15,907	100.00	264,113	100.00
Walla Walla				
Albit	5,912	2.80	157,390	2.70
Federation	29,561	14.00	909,366	15.60
Fortyfold	1,056	.50	2,332	.40
Hard Federation	148	.07	2,915	.05
Hybrid 63	6,060	2.87	122,415	2.10
Hybrid 128	39,506	18.71	1,055,097	18.10
Hybrid 143	84	.04	5,829	.10
Jenkin	19,004	9.00	565,439	9.70

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Bushels	Per cent
Walla Walla (Cont.)				
Red Chaff	1,858	.88	64,122	1.10
Triplet	77,429	36.67	2,203,463	37.80
Turkey	30,553	14.47	728,658	12.50
Total	211,171	100.01	5,817,026	100.15
Whitman				
Albit	46,363	9.74	1,415,108	11.80
Baart	2,570	.54	3,598	.03
Bluestem	333	.07	4,797	.04
California Glory	1,618	.34	35,977	.30
Club	3,665	.77	57,564	.48
Coppei	8,330	1.75	287,819	2.40
Dicklow	190	.04	1,199	.01
Federation	78,207	16.43	1,487,063	12.40
Fortyfold	47,934	10.07	1,380,330	11.50
Hard Federation	4,189	.88	71,955	.60
Hybrid 123	9,806	2.06	275,826	2.30
Hybrid 128	91,345	19.19	2,386,496	19.90
Hybrid 143	2,713	.56	76,752	.64
Jenkin	14,613	3.07	287,819	2.40
Jones Fife	4,332	.91	59,962	.50
Marquis	10,139	2.13	143,909	1.20
Mosida	476	.09	16,789	.14
Quality	381	.07	35,977	.30
Red Bobs	1,380	.29	23,985	.20
Red Chaff	2,951	.62	35,977	.30
Red Russian	13,376	2.81	347,781	2.90
Renfrew	524	.11	8,395	.07
Ridit	68,782	14.45	1,798,867	15.00
Triplet	43,507	9.14	1,247,214	10.40
Turkey	18,278	3.84	479,698	4.00
Total	476,002	99.96	11,970,857	100.09

Table 1. (Continued)

County and Variety	Area		Production	
	Acres	Per cent	Busbels	Per cent
Yakima				
Bart	7,773	16.41	74,228	5.10
Bluestem	1,255	2.65	85,872	5.90
Federation	9,829	20.75	85,872	5.90
Fortyfold	1,673	3.49	10,188	.70
Hybrid 128	4,633	9.78	157,189	10.80
Jenkin	597	1.26	18,921	1.30
Thompson	21,657	45.72	1,023,186	70.30
Total	47,397	100.06	1,455,456	100.00

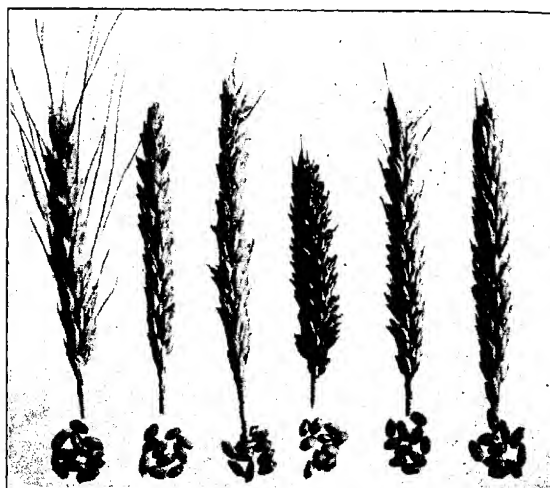


Fig. 2. Principal spring wheats recommended for various sections of Washington. Left to right in order of total production in 1929: Bart, Federation, Bluestem, Jenkin, Marquis, and Thompson.

In Whitman county the six leading varieties account for 81 per cent of the crop. Two of these varieties, Redit and Triplet, have red grain while the other four, Hybrid 128, Albit, Federation, and Fortyfold, are white. Federation, the only spring wheat of importance in the county, is represented by 16.4 per cent of the acreage but by only 12.4 per cent of the yield. The lower production per acre indicated here is largely due to the common practice of sowing spring wheat on stubble land while summer-fallow which is better than stubble land is usually sown to winter wheat.

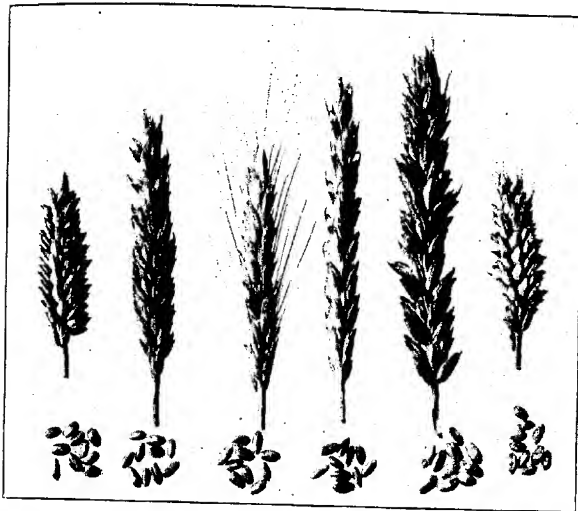


Fig. 3. Principal winter wheats recommended for various sections of Washington. Left to right in order of total production in 1929: Hybrid 128, Triplet, Turkey, Redit, Fortyfold, and Albit.

Five varieties, Triplet, Hybrid 128, Federation, Turkey, and Jenkin, make up 93.7 per cent of the wheat of Walla Walla county of which over two million bushels is Triplet. Federation and Jenkin, which are generally spring sown north of the Snake river in Whitman county, are usually fall sown in Walla Walla county. This survey showed that for Walla Walla county Federation had been fall sown on 65 per cent of the

farms upon which it is grown, while every farmer who reported Jenkin sowed it in the fall. In Whitman county Jenkin was fall sown by only 30 per cent of the farmers who grew it. Neither Jenkin nor Federation is winter hardy, as shown by their frequent winter killing at Pullman, but where the winters are mild as in Walla Walla county these varieties usually live through the winter and produce better results than when spring sown.

Lincoln and Adams are primarily spring wheat counties, with Baart, the leading variety, representing half the total wheat. Bluestem is an important variety in the northeastern part of Lincoln county where more than a million bushels were produced. Half a million bushels of Marquis were produced in this general area. In Adams county 30.6 per cent of the crop was winter wheat in 1929, the only varieties of importance being Turkey and Triplet. In Lincoln county 19.3 per cent of the wheat crop was fall sown, the principal varieties being Hybrid 128 and Ridit, although a little more than a hundred thousand bushels each of Fortyfold and Turkey were produced.

In Asotin, Spokane, Stevens, and Klickitat counties Fortyfold is of major importance. In Benton, Franklin, and Garfield, Turkey ranks first of the winter wheats. Federation holds first place among the spring wheats in Kittitas, Walla Walla, and Whitman counties. Thompson is the prevailing wheat in Yakima county.

Baart and Federation comprise approximately two-thirds of the spring grain of Washington. Bluestem and Marquis occupy an intermediate area between Baart and Federation. Jenkin is grown only in the foothills near the mountains. The spring wheats are generally more limited in their adaptation than are the winter varieties.

Among the winter wheats, Turkey has long been considered the most promising variety for areas of light rainfall. In some areas it has been replaced by Ridit, due in part to the appearance of new physiologic strains of smut which attack Turkey much more severely than Ridit. Turkey is the leading variety in Franklin county, producing three-fifths of the total. Fortyfold seems limited to areas near the mountains. Albit is very popular in areas of 16 to 24 inches of rainfall on account of its smut resistance and high yield. The 12 leading varieties are shown in Figures 2 and 3, and their distribution is indicated in Figures 4 and 5.

Change in Varieties Since 1918

Baart which 15 years ago was just beginning to take an important place among the varieties has largely supplanted Bluestem and Marquis in the Big Bend country. By 1926 Baart was far in the lead among the spring wheats. Bluestem ranked first among all varieties in production in 1918, but now is relegated to eighth place.

Triplet first appeared in the 1921 survey, and led the winter wheats by nearly a million bushels in 1926. Hybrid 128 has held first place among the winter wheats in every survey except that of 1926. Turkey has been second or third in each survey during the last 13 years. Red Russian has been practically driven out of the Palouse country during the last 12 years, as has Jones Fife from the drier Big Bend country to the west. Jones Fife, Red Russian, Coppei, and Hybrid 143 (see Table 2) comprised 14.1 per cent of the total wheat crop of Washington in 1923, but in 1929 they totaled but 3.2 per cent. Similarly, four spring varieties, Bluestem, Marquis, Jenkin, and Hybrid 123, in 1926 comprised 23.3 per cent of the crop, but in 1929 the percentage for these varieties had shrunk to 9.9.

Thus a series of varietal surveys at intervals depict the rise and fall of varieties to meet the needs of the farmer, which needs vary with the changing fertility of the soil, changing types of machinery with which the crop is harvested, changing demands of the market, and the appearance of new diseases.

A comparison of the surveys made since 1918 shows that there is a constant shift in the kinds of wheat grown. Since that time, four new wheats have appeared and have become commercially important. Triplet, Redit, Federation, and Albit were not reported in the first survey, but in 1929 they comprised more than one-third of the total wheat in Washington, besides large quantities grown in Oregon and Idaho.

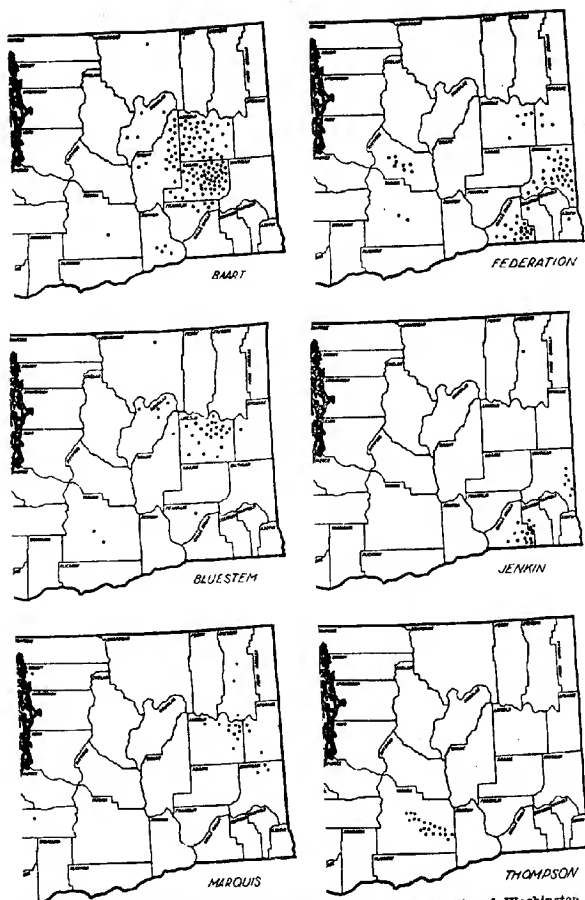


Fig. 4. Location and amount of the six leading spring wheats of Washington in 1929. Baart, 8,065,372 bushels; Federation, 3,407,866 bushels; Bluestem, 1,633,634 bushels; Jenkin, 1,071,484 bushels; Marquis, 1,068,866 bushels; Thompson, 1,023,186 bushels. Each dot represents 50,000 bushels.

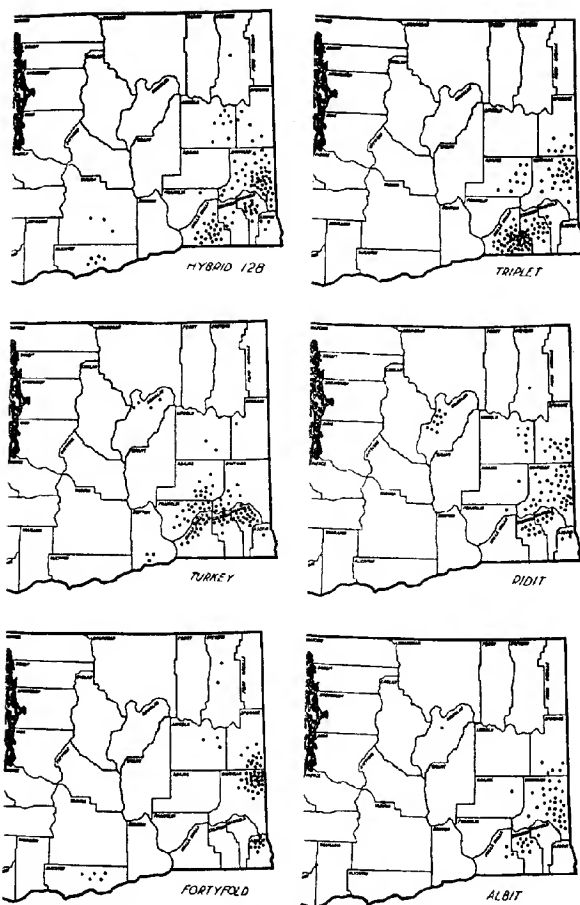


Fig. 5. Location and amount of the six leading winter wheats of Washington in 1929. Hybrid 128, 5,577,602 bushels; Triplet, 5,164,486 bushels; Turkey, 4,405,675 bushels; Eldit, 4,163,263 bushels; Fortyfold, 3,048,626 bushels; Albit, 2,474,098 bushels. Each dot represents 50,000 bushels.

Table 2. Summary of Washington Wheat Variety Surveys

Variety	1923		1926		1929	
	Bushels	Per cent*	Bushels	Per cent*	Bushels	Per cent*
Spring Wheats						
Baart	8,969,180	14.7	8,324,790	20.4	6,065,372	14.2
Federation	2,056	trace	1,933,510	4.7	3,407,866	8.0
Bluestem	5,121,561	8.4	3,623,813	8.9	1,633,634	3.8
Jenkin	2,385,339	3.9	2,388,649	5.8	1,071,484	2.5
Marquis	2,965,755	4.8	2,158,063	5.3	1,068,866	2.5
Thompson .....	.....	.....	.....	.....	1,023,186	2.4
Hybrid 123	857,814	1.4	1,361,755	3.3	458,987	1.1
Hard Federation	86,433	.1	501,038	1.2	294,656	.7
Red Chaff	702,462	1.1	1,129,904	2.8	111,305	.3
Red Bobs .....	.....	.....	72,127	.2	91,933	.2
Quality	75,000	.1	166,615	.4	88,416	.2
Bunyip .....	.....	.....	75,466	.2	84,727	.2
Little Club	90,325	.1	5,708	trace	56,589	.1
California Glory .....	.....	.....	.....	.....	35,977	.1
Dicklow	305,439	.5	656,422	1.6	30,502	.1
Currawa .....	.....	.....	.....	.....	15,400	trace
Big Club .....	.....	.....	.....	.....	11,270	trace
Ruby .....	.....	.....	.....	.....	10,120	trace
Renfrew .....	.....	.....	.....	.....	8,395	trace
Supreme .....	.....	.....	.....	.....	4,399	trace
Durum .....	.....	.....	.....	.....	2,724	trace
Total Spring	21,561,364	35.1	22,397,860	53.4	15,575,808	36.4

* Per cent based on total crop in state.

Table 2. (Continued)

Variety	1923		1926		1929	
	Bushels	Per cent*	Bushels	Per cent*	Bushels	Per cent*
Winter Wheats						
Hybrid 128	9,263,953	15.1	3,199,239	7.8	5,577,602	13.1
Triplet	6,408,063	9.9	4,229,408	10.3	5,164,486	12.1
Turkey	8,717,681	14.2	3,393,715	8.3	4,405,675	10.3
Ridit	.....	.....	893,291	2.2	4,163,263	9.8
Fortyfold	.....	8.7	2,296,683	5.6	3,048,626	7.2
Albit	5,336,364	.....	.....	.....	2,474,098	5.8
Jones Fife	2,226,571	3.6	583,256	1.4	477,901	1.1
Red Russian	2,389,638	3.9	334,661	.8	460,486	1.1
Coppel	2,990,980	4.9	517,194	1.3	311,825	.7
Hybrid 63	.....	.....	.....	.....	122,415	.3
Hybrid 143	1,071,052	1.7	487,629	1.2	111,027	.3
Club	195,964	.3	315,761	.8	87,442	.2
Selection C	.....	.....	248,892	.6	81,375	.2
Sun	.....	.....	.....	.....	35,931	.1
Karred	115,502	.2	223,014	.5	32,898	.1
Mosda	.....	.....	.....	.....	22,392	.1
Poole	.....	.....	40,399	.1	19,611	.1
Brown Squarehead	.....	.....	.....	.....	9,602	trace
White Odessa	.....	.....	.....	.....	2,802	trace
Total winter	38,715,768	62.5	16,763,142	40.9	26,609,457	62.6
Total winter and spring	60,277,132	97.6	39,161,002	93.7	42,185,265	99.0
Total in state	61,215,000	100.0	40,901,000	100.0	42,588,762	100.0

* Per cent based on total crop in state.

Market Classes of the Twelve Principal Wheats in 1929

Table 3 gives the amount and percentage of the total crop of the 12 leading varieties classified according to the Official Grain Standards of the United States for wheat. They fall into four classes and usually are placed in the subclasses indicated, when grown on the college farm at Pullman. Marquis is the only Hard Red Spring variety but, when grown west of the Rocky Mountains, is not considered equal to that grown in Montana. Turkey and Redit are listed as Hard Red Winter varieties, but some milling companies specify Turkey and will not accept Redit on account of its variable quality. In certain seasons Triplet classifies as Hard

Table 3. Twelve Leading Wheat Varieties of 1929 in Washington, Classified According to Federal Grades

Class or subclass and variety	Number of bushels	Per cent of total crop
Hard Red Spring		
Marquis	1,068,866	2.5
Hard Red Winter		
Turkey	4,405,675	10.3
Redit	4,163,263	9.8
Soft Red Winter		
Triplet	5,164,486	12.1
Total red wheats	14,802,290	34.7
White Wheat		
Hard White		
Baart	6,065,372	14.2
Bluestem	1,633,634	3.8
Soft White		
Fortyfold	3,048,626	7.2
Federation	3,407,866	8.0
Thompson	1,023,186	2.4
Western White		
Hybrid 128	5,577,602	13.1
Jenkin	1,071,484	2.5
Albit	2,474,098	5.8
Total white wheats	24,301,868	57.0

Red Winter, especially when grown in the drier sections of the state, but it is more often placed in the subclass, Western Red. Approximately one-third of the wheat of Washington is red, a large part of which is utilized for domestic flours.

The white wheats, as shown in Table 3, are quite evenly divided between the three subclasses, Hard White, Soft White, and Western White. However, the varieties may be shifted from one subclass to another in different seasons or when grown in different localities. Baart and Blue-stem are considered excellent milling wheats and usually bring a premium, while the others are generally used either in blending or for pastry flours. Assuming that the Western White, Soft White, and Western Red classes are best suited for the pastry trade and that the Redit and Bluestem which are grown on the heavier soils are better adapted for pastry, there is two-thirds of the total crop, or 25 million bushels, which might properly be utilized for cake, biscuit, crackers, pie crust, etc.

According to LeClerc and Bailey¹ 10 per cent of the country's flour consumption is self-rising flour, and self-rising flour represents 21.7 per cent of the flour used in the home. There were 11,000,000 barrels of self-rising flour produced in the United States in 1929 which required 45,000,000 bushels of wheat. The production of self-rising flour has been increasing at the cumulative rate of 3.3 per cent per annum during the five-year period 1924-1929.

Attention should be called to the large quantity of soft wheats grown in Washington which have long been noted for their value in the manufacture of pastry flours. Fewer varieties grown under uniform methods of cultivation and kept free of mixtures would enable the millers to standardize their products to the end that more dependable pastry flours would be available.

¹ LeClerc, J. A., and Bailey, L. H. The cake industry of America. The Northwestern Miller and American Baker 6: 346. 1929.

